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EXAMINER	
PARRY, CHRISTOPHER L	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/818,085	MILLER ET AL.	
	Examiner	Art Unit	
	Chris Parry	2623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 August 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,4,6,8,9,12-17,19,21,27,28,30-34 and 36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,4,6,8,9,12-17,19,21,27,28,30-34 and 36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 17 August 2007 has been entered.

Allowable Subject Matter

2. The indicated allowability of claim 35 is withdrawn in view of the newly discovered reference(s) to Frett and Klosterman. Rejections based on the newly cited reference(s) follow.

Response to Arguments

3. Applicant's arguments with respect to claims 1,3,4,6,8,9,12-17,19,21,27,28,30-34 and 36 have been considered but are moot in view of the new ground(s) of rejection.

In response to applicant's argument (Page 9, last ¶, lines 3-5), stating none of the cited references teach or suggest wherein the companion box device is configured and arranged to continuously determine the channel state of the set top box and ensure it

matches the user-specified, pre-programmed channel, the examiner respectfully disagrees.

Frett discloses wherein the companion box device (14 – figure 1) is configured and arranged to continuously determine the channel state of the set top box (20 – figure 1) by disclosing microprocessor 28 of controller 14 (figure 3), is programmed to continuously detect the channel being displayed on the LED display 18 (Col. 6, lines 32-34).

Klosterman discloses wherein the companion box device (20 – figure 1A) is configured and arranged to continuously determine the channel state of the set top box (24 – figure 1A) and ensure it matches the user specified, pre-programmed channel by disclosing after the user selects a television show to record or "user-specified pre-programmed channel" the coordinator 20 or "companion box device" checks to see if the beginning time for that show has passed and when the correct time does occur, the coordinator automatically tunes the VCR 24 or "set top box" to the user-specified pre-programmed channel (Col. 8, lines 44-63).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 3, 4, 6, 14-16, 19, 21, 30-34, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williams et al. "Williams" (USPN 6,469,634) [of record] in view of Frett (USPN 5,305,464) [of record] in view of and Kim et al. (USPN 5,303,063) [of record] in view of Klosterman (USPN 5,923,362) [of record].

Regarding Claim 1, Williams discloses an apparatus (100 – figure 1) for determining a channel state of a set top box (130 or 140; see fig.1, Col. 4, lines 6-14), the apparatus comprising: a sensing stage capable to detect light intensity from various positions on a display and generating output signals based on light intensity detected from the various positions (Col. 5, lines 2-6).

Williams further discloses an interface capable of generating a feedback signal (152 or 154) to indicate a channel state of the set top box (Col. 4, lines 41-54 and Col. 5, lines 2-6).

Williams teaches wherein the companion box (110 – figure 1) is configured to detect the channel state of the set top box (detect proper function, which includes channel selection; see Col. 4, lines 19-25, 54-62, Col. 5, lines 2-6) and based on the channel state (whether proper function detected; see fig.3, step 315), to automatically send a command to the set top box to change the channel of the set top box to a user-specified, pre-programmed channel (fig.3, step 310, after steps 315, 317, and 320) (Col. 8, lines 21-64).

Williams however fails to disclose a comparison stage coupled to the sensing stage; an output capable to transmit the feedback signal; and wherein the companion box is configured to continuously transmit the channel state.

In an analogous art, Frett discloses an apparatus (12 - figure 1) for determining a channel state of a set top box (20 – figure 1), the apparatus comprising: a sensing stage (22 – figure 1) capable to detect light intensity from various positions on a display and generating output signals based on light intensity detected from each of the various positions (Col. 4, lines 31-55 and Col. 5, lines 1-5).

Frett further discloses a comparison stage (26 – figure 2) communicatively couple to the sensing stage and capable to generate digital values by comparison of each generated output signals with a threshold value (Col. 5, line 54 to Col. 6, line 20).

Frett teaches an interface communicatively coupled to the comparison stage and capable to generate a feedback signal based upon the digital values to indicate a channel state of the set top box (Col. 6, lines 4-20).

Frett further teaches an output (38 – figure 1) capable to transmit the feedback signal to a companion box device (14 - figure 1) for processing, wherein the companion box device is configured to detect the channel state of the set top box (20 - figure 1) (Col. 5, line 66 to Col. 6, line 20).

Frett discloses wherein the companion box (14 - figure 1) device is configured and arranged to continuously determining the channel state of the set top box (20 - figure 1) (Col. 6, lines 32-36).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Williams to include a comparison stage coupled to the sensing stage and an output capable to transmit feedback, and continuously determine the channel state of the set top box as taught by

Frett, for the benefit of providing an improved non-intrusive apparatus for determining the channel to which a set top box is tuned.

Williams in view of Frett fail to disclose sending a command to change to a user-specified, pre-programmed channel, without changing the set of codes. However, in an analogous art, Kim discloses automatically transmitting a command to set a user-specified, pre-programmed channel state of a set top box without changing the set of codes (first sending command to power the cable box (and thus the tuner, thereby changing its channel state from no channel tuned to some channel tuned), and subsequently sending a command to change the tuning (further changing its channel state to a desired channel); device being controlled does not change, thus code set is not changed; see Col. 5, lines 5-41), thereby ensuring the desired operation is achieved (Col. 5, lines 39-41).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Williams and Frett to include sending command to change to a user-specified, pre-programmed channel, without changing the code set, as taught by Kim, for the benefit of ensuring the desired operation.

The combination of Williams, Frett, and Kim fail to together disclose ensuring the set top box matches the user-specified, pre-programmed channel.

In an analogous art, Klosterman discloses an apparatus (20 – figure 1A) for determining a channel state of a set top box (24 – figure 1A), the apparatus comprising wherein the companion box device (20 – figure 1A) is configured and arranged to continuously determine the channel state (repeating of step 92 shown in figure 4) of the

set top box (24 – figure 1A) and ensure it matches the user specified, pre-programmed channel (Col. 8, lines 44-63). Klosterman discloses after the user selects a television show to record or "user-specified pre-programmed channel" the coordinator 20 or "companion box device" checks to see if the beginning time for that show has passed and when the correct time does occur, the coordinator automatically tunes the VCR 24 or "set top box" to the user-specified pre-programmed channel (Col. 8, lines 44-63). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Williams, Frett, and Kim to include ensuring the set top box matches the user-specified, pre-programmed channel as taught by Klosterman, for the benefit of facilitating unattended recording of a scheduled program.

As for Claim 3, Williams, Frett, Kim, and Klosterman disclose the apparatus of claim 1, in particular Williams teaches wherein the sensing stage comprises a plurality of light sensing devices, each of the light sensing devices capable to detect light intensity at a corresponding position on the display (Col. 5, lines 2-6).

As for Claim 4, Williams, Frett, Kim and Klosterman disclose the apparatus of claim 1 in particular Williams teaches wherein the sensing stage comprises an array of light sensing devices (i.e., multiple sensors) capable to detect light intensity at the various positions of the display (Col. 5, lines 2-6).

Regarding Claim 6, Williams discloses a method of determining a channel state of a set top box (Col. 4, line 41 to Col. 5, line 6), the method comprising: detecting states of light emitting devices in a display of a set top box (Col. 5, lines 2-6).

Williams further teaches transmitting to a companion box device (110 – figure 1) a bit stream having (the digital values) to permit the companion box device to determine a channel state of the set top box (Williams, Col. 4, lines 41-48).

Williams however fails to disclose generating an analog value based on a detected state; comparing each analog value; receiving a signal from the companion box device that causes the set top box to change the channel; and wherein the method is repeated to continuously determine the channel state of the set top box.

In an analogous art, Frett discloses a method of determining a channel state of a set top box (Col. 5, line 54 to Col. 6, line 20), the method comprising: detecting states of light emitting devices in a display of a set top box (Col. 5, line 66 to Col. 6, line 20).

Frett further discloses generating an analog value based on each detected state and comparing each analog value with a threshold value (table stored in memory) and generating a digital value for each compared analog value (Col. 5, lines 15-35 and Col. 6, lines 7-20).

Frett teaches transmitting to a companion box device a bit stream having the generating digital values (via line 38 shown in figure 1) to permit the companion box device to determine a channel state of the set top box (the values detected by light

sensor 20 are sent to controller 14 and the values are stored in memory 32) (Col. 5, line 36 to Col. 6, line 20).

Frett further teaches wherein the method is repeated to continuously determine the channel state of the set top box (20 - figure 1) (Col. 6, lines 32-36).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Williams to include generating an analog value based on a detected state; comparing each analog value; and wherein the method is repeated to continuously determine the channel state of the set top box as taught by Frett, for the benefit of providing an improved non-intrusive apparatus for determining the channel to which a set top box is tuned.

Williams in view of Frett fail to disclose sending a command to change to a user-specified, pre-programmed channel. However, in an analogous art, Kim discloses automatically transmitting a command to set a user-specified, pre-programmed channel state of a set top box without changing the set of codes (first sending command to power the cable box (and thus the tuner, thereby changing its channel state from no channel tuned to some channel tuned), and subsequently sending a command to change the tuning (further changing its channel state to a desired channel); device being controlled does not change, thus code set is not changed; see Col. 5, lines 5-41), thereby ensuring the desired operation is achieved (Col. 5, lines 39-41).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Williams and Frett to include sending command to

change to a user-specified, pre-programmed channel, without changing the code set, as taught by Kim, for the benefit of ensuring the desired operation.

The combination of Williams, Frett, and Kim fail to together disclose ensuring the set top box matches the user-specified, pre-programmed channel.

In an analogous art, Klosterman discloses wherein the companion box device (20 – figure 1A) is configured and arranged to continuously determine the channel state (repeating of step 92 shown in figure 4) of the set top box (24 – figure 1A) and ensure it matches the user specified, pre-programmed channel (Col. 8,lines 44-63). Klosterman discloses after the user selects a television show to record or "user-specified pre-programmed channel" the coordinator 20 or "companion box device" checks to see if the beginning time for that show has passed and when the correct time does occur, the coordinator automatically tunes the VCR 24 or "set top box" to the user-specified pre-programmed channel (Col. 8, lines 44-63). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Williams, Frett, and Kim to include ensuring the set top box matches the user-specified, pre-programmed channel as taught by Klosterman, for the benefit of facilitating unattended recording of a scheduled program.

As for Claim 36 Williams, Frett, Kim, and Klosterman together teach the method of claim 6, wherein the detecting states of light emitting devices comprises detecting eth states of the light emitting devices in the display of the set top box

(Frett, Col. 5, line 54 to Col. 6, line 20) in preparation for recording television content (Klosterman, figures 3 and 4, Col. 8, lines 44-63).

Regarding Claim 14, Williams discloses a method of detecting a channel state of a set top box (Col. 4, line 61 to Col. 5, line 6), the method comprising: sampling output from a plurality of light-sensing elements coupled to a display of a set top box (Col. 5, lines 2-6) and determining a channel state of the display based on the output (Col. 4, line 61 to Col. 5, line 6).

However, Williams fails to disclose comparing the determined channel state, sending a change channel command, and wherein the method is repeated continuously determine the channel state of the set top box.

In an analogous art, Frett discloses sampling output from a plurality of light-sensing elements coupled to a display of a set top box and determining a channel state of the display based on the output (Col. 5, line 15 to Col. 6, line 20).

Frett further discloses wherein the method is repeated to continuously determine the channel state of the set top box (Col. 6, lines 32-36). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Williams to include continuously determine the channel state of the set top box as taught by Frett for the benefit of providing an improved non-intrusive apparatus for determining the channel to which a set top box is tuned.

The combination of Williams and Frett fail to disclose comparing the determined channel state and sending a change channel command.

In an analogous art, Kim discloses automatically transmitting a command to set a desired channel state of a set top box without changing the set of codes (first sending command to power the cable box (and thus the tuner, thereby changing its channel state from no channel tuned to some channel tuned), and subsequently sending a command to change the tuning (further changing its channel state to a desired channel); device being controlled does not change, thus code set is not changed; see Col. 5, lines 5-41), thereby ensuring the desired operation is achieved (Col. 5, lines 39-41). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Williams to include sending a channel change command without changing the code set, as taught by Kim, for the benefit of ensuring the desired operation.

The combination of Williams, Frett, and Kim fail to disclose ensuring the set top box matches the desired channel state. In an analogous art, Klosterman discloses wherein the companion box device (20 – figure 1A) is configured and arranged to continuously determine the channel state (repeating of step 92 shown in figure 4) of the set top box (24 – figure 1A) and ensure it matches the user specified, pre-programmed channel (Col. 8,lines 44-63). Klosterman discloses after the user selects a television show to record or "user-specified pre-programmed channel" the coordinator 20 or "companion box device" checks to see if the beginning time for that show has passed and when the correct time does occur, the coordinator automatically tunes the VCR 24 or "set top box" to the user-specified pre-programmed channel (Col. 8, lines 44-63). Thus, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to modify the combination of Williams, Frett, and Kim to include ensuring the set top box matches the user-specified, pre-programmed channel as taught by Klosterman, for the benefit of facilitating unattended recording of a scheduled program.

As for Claim 15, Williams, Frett, Kim, and Klosterman disclose the method of claim 14, in particular Frett teaches determining the channel state includes using character recognition software (executed by microprocessor 28; see Col. 5, line 5 - Col. 6, line 20).

As for Claim 16, Williams, Frett, Kim, and Klosterman disclose, in particular Frett teaches determining the channel state includes comparing the output with values in a look-up table (see Col. 6, lines 7-20).

As for Claim 19, Williams, Frett, Kim, and Klosterman disclose, in particular Williams teaches wherein the plurality of light-sensing elements are arranged in an array (Col. 5, lines 2-6).

As for Claim 21, Williams, Frett, Kim, and Klosterman disclose the system of claim 14, but fail to disclose the device includes a second display configured to display the set top box channel state. Official notice is taken of the fact that it is well known in the art for a second display device (e.g., television) to display the channel

state of the set top box (e.g., on a window or banner of an electronic programming guide, the channel number to which the set-top box is tuned is indicated), for the purpose of keeping the user informed of the channel to which the set-top box is tuned.

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Williams and Kim to include a second display configured to display the set top box channel state, for the purpose of keeping the user informed of the channel to which the set-top box is tuned.

Regarding Claim 30, Williams discloses a method of maintaining a channel state of a set top box (Col. 4, line 41 to Col. 5, line 6), the method comprising: detecting the channel state of a set top box based on a display of the channel state on the set top box (Col. 5, lines 2-6).

Williams discloses generating signal information indicative of the detected channel state (feedback is provided to 110 via 152/154 as shown in figure 1; Col. 4, line 41 to Col. 5, line 6).

Williams further teaches transmitting information to a companion box (110 – figure 1) for the companion box to determine an initial channel state of the set top box (Col. 4, lines 41-48 and see fig.3, step 315).

Williams teaches comparing the current channel state to the initial channel state ("no" at step 315, fig.3) and sending a command to the set top box to change

to the initial channel state if the current channel state id determined to be different that the initial channel state (fig.3, step 310, after step 317 and step 320).

Williams however fails to disclose continuously repeating the steps of detecting the channel state of the set top box and ensuring the current channel state matches the initial channel state.

In an analogous art, Frett discloses a method of maintaining a channel state of a set top box (Col. 5, line 54 to Col. 6, line 20), the method comprising: detecting the channel state of a set top box (20 – figure 1) based on a display of the channel state on the set top box (Col. 5, line 66 to Col. 6, line 20).

Frett further discloses generating signal information indicative of the detected channel state (Col. 5, lines 15-35 and Col. 6, lines 7-20).

Frett teaches transmitting (via line 38 shown in figure 1) the generated signal information to a companion box (14 – figure 1) for the companion box to determine the an initial channel state of the set top box (the values detected by light sensor 20 are sent to controller 14 and the values are stored in memory 32) (Col. 5, line 36 to Col. 6, line 20).

Frett further teaches continuously repeating the steps of detecting the channel state of the set top box, generating the signal information indicative of the channel state, and transmitting the generated signal information to the companion box to determine a current channel state of the set top box (20 - figure 1) (Col. 6, lines 32-36).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Williams to include continuously

repeating the steps of detecting the channel state of the set top box, as taught by Frett, for the benefit of providing an improved non-intrusive apparatus for determining the channel to which a set top box is tuned.

Williams in view of Frett fail to disclose sending a command to change to a user-specified, pre-programmed channel. However, in an analogous art, Kim discloses automatically transmitting a command to set a user-specified, pre-programmed channel state of a set top box without changing the set of codes (first sending command to power the cable box (and thus the tuner, thereby changing its channel state from no channel tuned to some channel tuned), and subsequently sending a command to change the tuning (further changing its channel state to a desired channel); device being controlled does not change, thus code set is not changed; see Col. 5, lines 5-41), thereby ensuring the desired operation is achieved (Col. 5, lines 39-41).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Williams and Frett to include sending command to change to a user-specified, pre-programmed channel, without changing the code set, as taught by Kim, for the benefit of ensuring the desired operation.

The combination of Williams, Frett, and Kim fail to together disclose ensuring the current channel state matches the initial channel state.

In an analogous art, Klosterman discloses wherein the companion box device (20 – figure 1A) is configured and arranged to continuously determine the channel state (repeating of step 92 shown in figure 4) of the set top box (24 – figure 1A) and ensure the current channel state matches the initial channel state (the channel that the

recording is scheduled for) (Col. 8, lines 44-63). Klosterman discloses after the user selects a television show to record or "user-specified pre-programmed channel" the coordinator 20 or "companion box device" checks to see if the beginning time for that show has passed and when the correct time does occur, the coordinator automatically tunes the VCR 24 or "set top box" to the user-specified pre-programmed channel (Col. 8, lines 44-63). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Williams, Frett, and Kim to include ensuring the set top box matches the user-specified, pre-programmed channel as taught by Klosterman, for the benefit of facilitating unattended recording of a scheduled program.

As for Claim 31 Williams, Frett, Kim, and Klosterman disclose, in particular Frett teaches wherein detecting the channel state of the set top box (20 –figure 1) includes detecting a state of light output from light emitting devices (18 – figure 1) in the display showing the channel state of the set top box (Col. 5, line 54 to Col. 6, line 20).

As for Claim 32, Williams, Frett, Kim, and Klosterman disclose, in particular Frett teaches wherein the signal information is generated from detecting the state of the light output from light emitting devices (Col. 5, line 54 to Col. 6, line 20).

As for Claim 33, Williams, Frett, Kim, and Klosterman disclose, in particular Frett teaches wherein the channel state is determined by the companion box by comparing the signal information with values in a look-up table (see Col. 6, lines 7-20).

As for Claim 34, Williams, Frett, Kim, and Klosterman disclose, in particular Williams teaches sending the command to the set top box comprises transmitting an infrared (IR) beam from an IR blaster configured to communicate with the set top box (Col. 5, lines 25-38).

6. Claims 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williams in view of Kim in view of Frett in view of Klosterman.

Regarding Claim 27, Williams discloses a companion box (110 – figure 1) configured to communicate with a set top box (130 or 140 – figure 1) via an IR blaster (120 – figure 1) to affect a channel state (i.e., "function", which includes channel selection, Col. 4, lines 19-25) of the set top box (see fig.1, Col. 4, lines 6-62), the companion box comprising:

an IR blaster capable to use a set of codes to send a command via an IR beam to the set top box (Col. 8, lines 22-32); and

a channel state recognition circuit (215 – figure 2) in communication with the IR blaster, the channel state recognition circuit including a processor (205 – figure 2) and a plurality of light-sensing elements ("sensors") positioned relative to light

emitting devices on a display of the set top box, the light emitting devices indicating the channel state of the set top box (Col. 5, lines 2-6), the processor being coupled to the plurality of light sensing elements to receive one or more signals (152, 154) therefrom (Col. 4, lines 41-43) and determine the channel state of the set top box (Col. 4, lines 48-62), wherein the processor is configured to send a command via the IR blaster using the set of codes to change the channel state of the set top box to a particular channel state (i.e., channel selection up/down, Col. 4, lines 24-25) and wherein after sending the command, the processor is further configured to receive one or more signals from the light sensing elements and determine the channel state of the set top box (whether the proper function was executed, see fig.3, step 315) and if the channel state of the set top box does not match the particular channel state ("no" at step 315, fig.3), the processor is configured to send the command via the IR blaster to change the channel state to the particular channel state (fig.3, step 310, after step 317 and step 320).

Williams fails to disclose sending the command without changing the set of codes used to the send the command. However, in an analogous art, Kim discloses automatically transmitting a command to set a desired channel state of a set top box without changing the set of codes (first sending command to power the cable box (and thus the tuner, thereby changing its channel state from no channel tuned to some channel tuned), and subsequently sending a command to change the tuning (further changing its channel state to a desired channel); device being controlled does not change, thus code set is not changed; see Col. 5, lines 5-41), thereby

ensuring the desired operation is achieved (Col. 5, lines 39-41). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Williams to include sending a channel change command without changing the code set, as taught by Kim, for the benefit of ensuring the desired operation.

The combination of Williams and Kim fail to disclose wherein the method is repeated to continuously determine the channel state of the set top box. In an analogous art, Frett discloses wherein the companion box (14 - figure 1) device is configured and arranged to continuously determining the channel state of the set top box (20 - figure 1) (Col. 6, lines 32-36).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Williams to include a comparison stage coupled to the sensing stage and an output capable to transmit feedback, and continuously determine the channel state of the set top box as taught by Frett, for the benefit of providing an improved non-intrusive apparatus for determining the channel to which a set top box is tuned.

The combination of Williams, Kim, and Frett fail to together disclose ensuring the set top box matches the user-specified, pre-programmed channel.

In an analogous art, Klosterman discloses an apparatus (20 – figure 1A) for determining a channel state of a set top box (24 – figure 1A), the apparatus comprising wherein the companion box device (20 – figure 1A) is configured and arranged to continuously determine the channel state (repeating of step 92 shown in figure 4) of the set top box (24 – figure 1A) and ensure it matches the user specified, pre-programmed

channel (Col. 8, lines 44-63). Klosterman discloses after the user selects a television show to record or "user-specified pre-programmed channel" the coordinator 20 or "companion box device" checks to see if the beginning time for that show has passed and when the correct time does occur, the coordinator automatically tunes the VCR 24 or "set top box" to the user-specified pre-programmed channel (Col. 8, lines 44-63). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Williams, Frett, and Kim to include ensuring the set top box matches the user-specified, pre-programmed channel as taught by Klosterman, for the benefit of facilitating unattended recording of a scheduled program.

Regarding Claim 28, Williams discloses a companion box (110 – figure 1) configured for communication with a set top box (130 or 140 – figure 1) via an IR blaster (120 – figure 1), the set top box having an output with channels over which programming content is communicated, the companion box comprising:

an IR blaster capable to use a set of codes to send a command via an IR beam to the set top box (Col. 8, lines 22-32);

a feedback interface (152,154 – figure 1) configured to produce a feedback signal indicative of a channel state of the set top box (Col. 4, lines 41-54 and Col. 5, lines 2-6); and

a processor (215 - figure 2) coupled to the feedback interface and the IR blaster, wherein after the IR blaster sends a command to the set top box to change

the channel state to a desired channel state (i.e., channel selection up/down, Col. 4, lines 24-25), the processor is configured to receive the feedback signal from the feedback interface (whether the proper function was executed, see fig.3, step 315), and if the channel state does not match the desired channel state ("no" at step 315, fig.3), the processor is further configured to cause the IR blaster to send the command to change the channel state to the desired channel state (fig.3, step 310, after step 317 and step 320).

Williams fails to disclose sending the command without changing the set of codes used to the send the command. However, in an analogous art, Kim discloses automatically transmitting a command to set a desired channel state of a set top box without changing the set of codes (first sending command to power the cable box (and thus the tuner, thereby changing its channel state from no channel tuned to some channel tuned), and subsequently sending a command to change the tuning (further changing its channel state to a desired channel); device being controlled does not change, thus code set is not changed; see Col. 5, lines 5-41), thereby ensuring the desired operation is achieved (Col. 5, lines 39-41). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Williams to include sending a channel change command without changing the code set, as taught by Kim, for the benefit of ensuring the desired operation.

The combination of Williams and Kim fail to disclose wherein the method is repeated to continuously determine the channel state of the set top box. In an analogous art, Frett discloses wherein the companion box (14 - figure 1) device is

configured and arranged to continuously determining the channel state of the set top box (20 - figure 1) (Col. 6, lines 32-36).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Williams to include a comparison stage coupled to the sensing stage and an output capable to transmit feedback, and continuously determine the channel state of the set top box as taught by Frett, for the benefit of providing an improved non-intrusive apparatus for determining the channel to which a set top box is tuned.

The combination of Williams, Kim, and Frett fail to together disclose ensuring the set top box matches the user-specified, pre-programmed channel.

In an analogous art, Klosterman discloses an apparatus (20 – figure 1A) for determining a channel state of a set top box (24 – figure 1A), the apparatus comprising wherein the companion box device (20 – figure 1A) is configured and arranged to continuously determine the channel state (repeating of step 92 shown in figure 4) of the set top box (24 – figure 1A) and ensure it matches the user specified, pre-programmed channel (Col. 8, lines 44-63). Klosterman discloses after the user selects a television show to record or "user-specified pre-programmed channel" the coordinator 20 or "companion box device" checks to see if the beginning time for that show has passed and when the correct time does occur, the coordinator automatically tunes the VCR 24 or "set top box" to the user-specified pre-programmed channel (Col. 8, lines 44-63). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Williams, Frett, and Kim to include

ensuring the set top box matches the user-specified, pre-programmed channel as taught by Klosterman, for the benefit of facilitating unattended recording of a scheduled program.

7. Claims 8 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williams in view of Frett in view of Klosterman.

Regarding Claim 8, Williams discloses a set top box channel state system (100 – figure 1), comprising: a device including a plurality of light sensing elements communicatively coupled to a display of a set top box, the display including a plurality of light emitting devices (Col. 4, line 41 to Col. 5, line 6).

Williams further discloses a companion box device (110 – figure 1) communicatively coupled (via feedback lines 152 and 154) to the light-sensing elements, the companion box device (Col. 4, line 41 to Col. 5, line 6) including: an infrared blaster (120 – figure 1) capable to use a code set to send commands via an IR beam to the set-top box (see Williams, fig.1, Col. 3, l. 43-48), a channel state analysis engine (235 – figure 2) communicatively coupled to the character recognition engine (215 – figure 2) and capable to determine if the channel state matches a desired channel state (fig.2, Col. 7, line 56 to Col. 8, line 11), and a response engine (230 – figure 2) communicatively coupled to the analysis engine and the IR blaster and capable to command the IR blaster, without changing the code set, to send a change channel command via IR beam to the set top box if the channel state does not match the desired channel state (fig.2, Col. 8, lines 21-33).

However, Williams fails to disclose a character recognition engine and disclosing wherein the companion box device is configure and arranged to continuously determine the channel state of the set top box.

In an analogous art, Frett discloses a set top box channel state system (figure 1), comprising: a device (16 – figure 1) including a plurality of light-sensing elements (26 – figure 2) communicatively coupled to a display of a set top box (20 – figure 1), the display including a plurality of light emitting devices (Col. 5, lines 15-35).

Frett further discloses a companion box device (14 – figure 1), the companion box including a character recognition engine (28 – figure 3) capable to determine set top box channel state as displayed on the display based on the output of the light-sensing elements (Frett, fig.3, Col. 5, line 54 - Col. 6, line 20).

Frett discloses wherein the companion box (14 - figure 1) device is configured and arranged to continuously determining the channel state of the set top box (20 - figure 1) (Col. 6, lines 32-36).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Williams to include a character recognition engine and disclosing wherein the companion box device is configure and arranged to continuously determine the channel state of the set top box as taught by Frett, for the benefit of providing an improved non-intrusive apparatus for determining the channel to which a set top box is tuned.

The combination of Williams and Frett fail to together disclose ensuring the set top box matches the user-specified, pre-programmed channel.

In an analogous art, Klosterman discloses an apparatus (20 – figure 1A) for determining a channel state of a set top box (24 – figure 1A), the apparatus comprising wherein the companion box device (20 – figure 1A) is configured and arranged to continuously determine the channel state (repeating of step 92 shown in figure 4) of the set top box (24 – figure 1A) and ensure it matches the user specified, pre-programmed channel (Col. 8, lines 44-63). Klosterman discloses after the user selects a television show to record or "user-specified pre-programmed channel" the coordinator 20 or "companion box device" checks to see if the beginning time for that show has passed and when the correct time does occur, the coordinator automatically tunes the VCR 24 or "set top box" to the user-specified pre-programmed channel (Col. 8, lines 44-63). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Williams and Frett to include ensuring the set top box matches the user-specified, pre-programmed channel as taught by Klosterman, for the benefit of facilitating unattended recording of a scheduled program.

As for Claim 12, Williams, Frett, and Klosterman disclose the system of claim 8, but fail to disclose the device includes a second display configured to display the set top box channel state. Official notice is taken of the fact that it is well known in the art for a second display device (e.g., television) to display the channel state of the set top box (e.g., on a window or banner of an electronic programming guide, the channel number to which the set-top box is tuned is indicated), for the purpose of keeping the user informed of the channel to which the set-top box is tuned.

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Williams, Frett, and Klosterman to include a second display configured to display the set top box channel state, for the purpose of keeping the user informed of the channel to which the set-top box is tuned.

8. Claims 9 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williams in view of Frett in view of Klosterman as applied to claim 8 above, and further in view of Zinzell (USPN 6,097,302) [of record].

As for Claims 9 and 13 the combination of Williams, Frett, and Klosterman disclose the system of claim 8, but fail to disclose the sensing stage includes an array of photodiodes equal in number to the plurality of light-emitting devices in the display. However, in an analogous art, Zinzell illustrates a sensing stage comprising an array of photodiodes [32, 33, . . ., 38], equal in number to the plurality of light-emitting devices [22, 23, . . ., 28] in the display [20] (see Col. 5, lines 8-22). Zinzell indicates that the disclosed arrangement provides independent monitoring of each individual light-emitting segment and reduces the occurrence of false readings due to ambient lighting (see Col. 6, lines 62–67 and Col. 5, line 56 – Col. 6, line 2).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the sensing stage of Williams, Frett, and Klosterman to include an array of photodiodes equal in number to the plurality of

light-emitting devices in the display, as taught by Zinzell, in order to achieve more reliable channel detection.

9. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Williams in view of Frett, in view of Kim, in view of Klosterman as applied to claim 14 above, and further in view of Zinzell.

As for Claim 17 Williams, Frett, Kim, and Klosterman discloses the system of claim 14, but fail to disclose the sensing stage includes an array of photodiodes equal in number to the plurality of light-emitting devices in the display. However, in an analogous art, Zinzell illustrates a sensing stage comprising an array of photodiodes [32, 33, . . ., 38], equal in number to the plurality of light-emitting devices [22, 23, . . ., 28] in the display [20] (see Col. 5, lines 8-22). Zinzell indicates that the disclosed arrangement provides independent monitoring of each individual light-emitting segment and reduces the occurrence of false readings due to ambient lighting (see Col. 6, lines 62–67 and Col. 5, line 56 – Col. 6, line 2).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the sensing stage of Williams, Frett, Kim, and Klosterman to include an array of photodiodes equal in number to the plurality of light-emitting devices in the display, as taught by Zinzell, in order to achieve more reliable channel detection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chris Parry whose telephone number is (571) 272-8328. The examiner can normally be reached on Monday through Friday, 8:00 AM EST to 4:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Grant can be reached on (571) 272-7294. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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